

ABSTRACT OF THE DISCLOSURE

A method for the production of polyetherols using aluminum phosphonate catalysts is disclosed. Reaction products of the process include various polyetherols including very low unsaturation polyether polyols. The aluminum phosphonate catalyst preferably has a general structure of  $RPO-(OAlR'R'')_2$ , wherein O represents oxygen, P represents pentavalent phosphorous, Al represents aluminum, R comprises a hydrogen, an alkyl group, or an aryl group, and R' and R'' independently comprise a halide, an alkyl group, an alkoxy group, an aryl group, or an aryloxy group. Polyols produced according to the disclosed procedure have properties very similar to or more beneficial than those produced utilizing the typical base catalysts.

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